

Henkel

Installation Handbook

Lineguard ST4



HENKEL ITALIA S.r.l.
Microprocessor instruments



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1. The Microprocessor Instruments

The microprocessor instruments LINEGUARD series are the most adaptable to whichever requirement of customer. Thanks to their programming and their robustness, can be installed in the most varied methodologies system.

1.1. Norms of Installation

- Make sure to place the LINEGUARD ST4 far away from heat sources.
- Feed LINEGUARD ST4 with 220 stabilized VAC (possibly connected to same 220 VAC used from computers or similar).
- To avoid to place the instrument on bases or pedestals, subject to vibrations.
- Don't place the cables for conductivities probes or pH transmission inside cable channel where there is cables of feeding to high voltage 380 V.

1.2. Technical Characteristics

Container of the electronics:	Width 300, height 260, depth 120 in ABS; IP65
Cable holder unit electronic:	PG9 for serration cables 5...7mm of diameter (others configurations upon request)
Weight (total):	Approximately 7 kg
Feeding electrical worker:	220 +/- 10% 50-60 Hz, 40 G
Hydraulic feeding:	minimum 10 l/h and 0.2 BAR
Climatic Conditions:	Storage temperature -20...+60°C Temperature of exercise -10...+50°C Humidity MAX 90% without condenses
Display:	Alphanumeric LCD two lines for 16 characters
Other incomes:	On terminal box high isolation.

1.3. Main Technical Notes

1. Programmable output relay set-point, min-max alarms, auto cleaning.
2. Galvanic separation between input/microprocessor and current output.
3. Alarms and errors (diagnostic) visualize directly on the display.
4. Always time dater, also in feeding absence.
5. Rescue of the data program/calibration on memory (retention minimum 10 years).
6. RS232C output for data exchange with PC, PLC and software LINEGUARD DIGILOG.

1.4. Technical Specifications

Standard combinations:	In1(mis1)=pH, In2(mis2)=mS, In3(mis3)=mS In4(mis4)=uS
Possible combinations:	In 1: pH, mS, uS, redox... In 2: pH, mS, uS, redox... In 3: pH pH, mS, uS, redox... In 4: pH, mS, uS, redox...
Input specifications:	mA: Whichever scale specify to the order. Better precision of the 0.1% of the F.S., better repeatability of the 0.05% of the F.S.
Output relay:	N° 5 for regulations ON-OFF called K1,K2,K3,K4 and K5. output relay are free contact. N° 4 for alarms ON-OFF called K6,K7,K8,K9 output relay are free contact. They are available on terminal box. Contacts capacity max 250 VAC 3A. All the input and the output are on terminal box.

2. Introduction

Henkel can modify the instrument or the handbook without warning.

The handbook describes standard version.

The indications in this document represent the peripheral electrical connections for the correct installation of LINEGUARD ST4.

The electronic planning of the Lineguard and all the devices connection has been executed from the HENKEL, which assures one corrected functionality and guarantee some regarding European norms.

Electronic characteristics of the input and output are brought back to page 4.

In standard version, the LINEGUARD ST4 is complete of:

1. n. 1 electronic unit
2. n. 3 dosing pumps VMF
3. n. 1 set for wallet installation
4. n. 1 electrode of pH
5. n. 2 probes conductivity induction
6. n. 1 probe of conductivity
7. n.4 amplifier-converters of signal

The wiring diagram in function of the real requirements, could be modified, respecting however the general criteria indicates in the standard typology.

The remote control switch of the re-circulate pump isn't supplied by HENKEL, but it must be present in the system.

2.1. Prescription LINEGUARD^R ST4

1. All the clips are not always present in the input, depend on the initial configuration (Vs. order).
2. To exchange phase with neutral of the feeding it means to have the inner fuse of protection (F1) connected to the neutral instead to the phase; for the Lineguard ST4 is not important.
3. The feeding earth (clip 3) is connected to the grounding of the electrical system. The connection is not obligatory for the emergency, (draft of an apparatus of class II) but is indispensable to dispel eventual disturbs coming from electrical line of feeding.
4. The output max load relay is 3A to 250V A.C.; with inductive the max current is 1A (can be supply directly pumps or electro valves with powers of 200VA to 220V A.C.).

5. In event of output in tension (24V A.C.), the max power is of 20VA; eventual overloads can burn fuse of protection F2 1A.
6. In the inductive case the output must be protect with oportune systems of arches disturbs suppression.

Inner to Lineguard ST4 they are previewed suppressors for 250V A.C. if contacts output or for 24V A.C. if in tension output. A corrected suppressor of disturbs must determinate by the customer in function of the cargo/feeding.

7. In order to obtain a correct operation of the apparatus also in worse disturbance conditions, we advise following prescription:
 - a. block ferrite radio frequency in the feeding cable;
 - b. shielding of input cables signal with connected metallic girdle to earth;
 - c. suppressors RC (or equivalents) in parallel to the cargo (determine the proportions oportunely)
 - d. good connection to earth of the Lineguard;
 - e. shielding with grounding of output current cables in case to exceeds 20m of length.

2.2. General Prescriptions for the Installations

Classification of the installation system place and respect of CEI norms:

Classification of the fundamental system and norms CEI:

- Ordinary system CEI 64-8 IV ed.
- System risk in fire case CEI 64-8/7 IV ed.
- System with danger of outbreak CEI 31-30, CEI 31-33, CEI 31-35/A, etc.

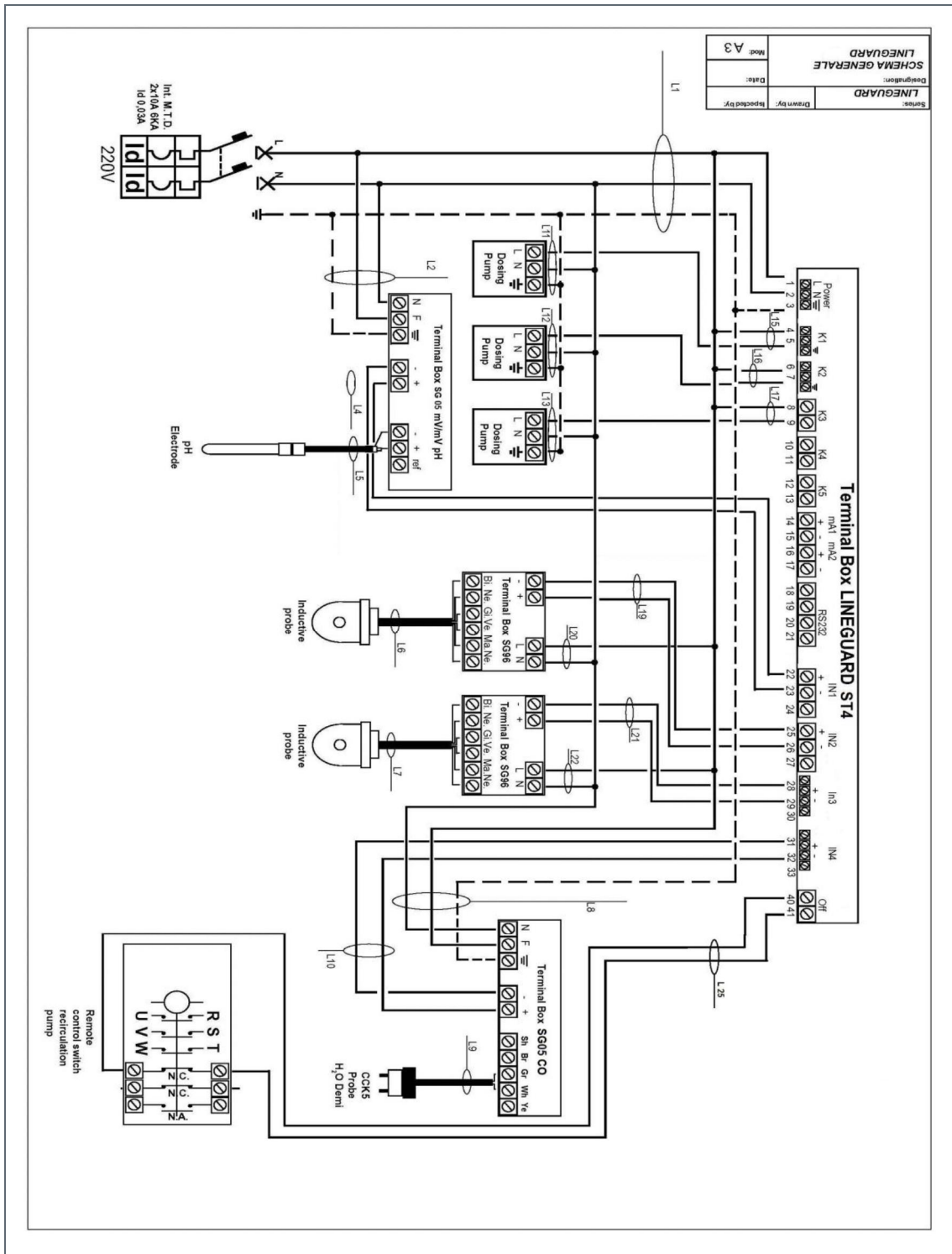
Analysis of atmospheres:

- Temperatures of exercise - 10/+ 50 °C
- To avoid installation in proximity of heat sources
- Implantations in structures not subject to vibrations
- Install far away from zones with elevated presence of water and humidity 90%
- To avoid the contact with chemical agents
- To avoid installation in zone with presence of systems that can generate disturbs (magnetic).

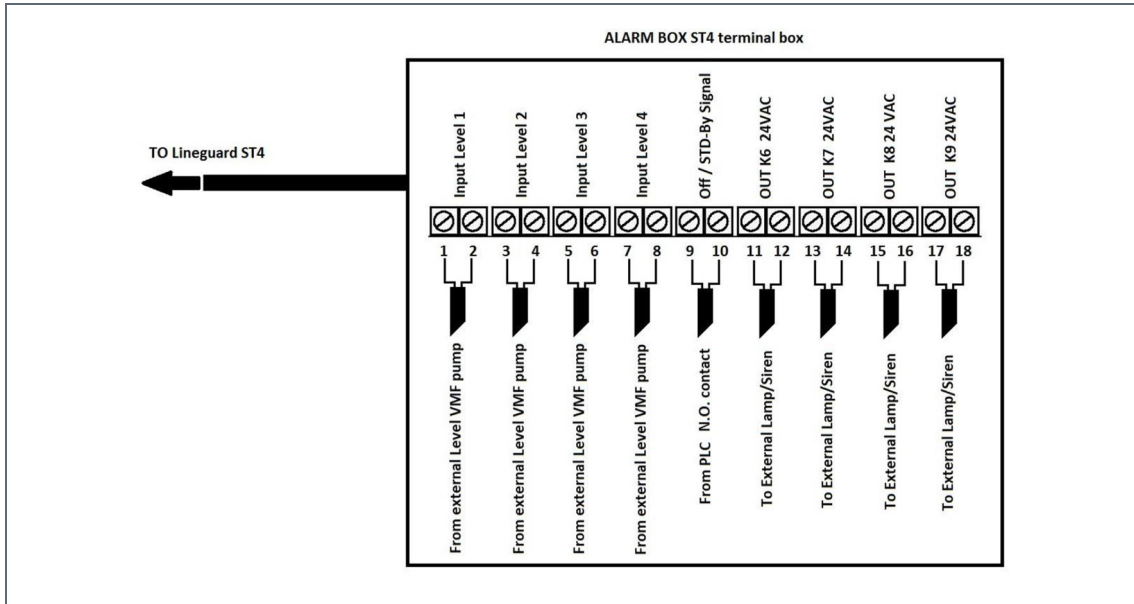
2.3. Technical Prescription

- The installation and the eventual maintenances of such systems must to be executed from a qualified installation company.
- To respect the supplied indication in the wiring diagram, with particular cure for numeration of conductors (ex. L1 cable conductors 1-2-PE).
- Devices connections with cables type: see tab. 1.
- Cables rest, previously indicates, in ducts dedicated and opportunely chosen in function of the installation atmosphere.
- Ducts with isolate cables for the high voltage, isolation 450/750V and max tension of exercise 250V.
- The splices must to be executed with clips in opportunely derivation box, with protection minimal IP 44 and chosen in function of the installation atmosphere.
- The Lineguard and the amplifiers converters coverings, are supplied with protection minimal IP 44, with cable holder PG7 from 5 - 7 millimetres and in II class.
- Feeding from mains voltage 220V +/- 10%, 50/60 Hz.
- Measure of the short circuit current in the point of feeding of the Lineguard.
- Verification that the values of the short circuit currents F-F, F-N and F-PE, is inferior to the interruption power of the switch.
- Measure of the earth resistance in the feeding point; verify that value is inferior to 833 ohm, tension of contact $V_c = 25V$, $I_{dn} = 0,03A$ [$R_t = V_c / I_{dn} = 25 / 0,03 = 833ohm$]

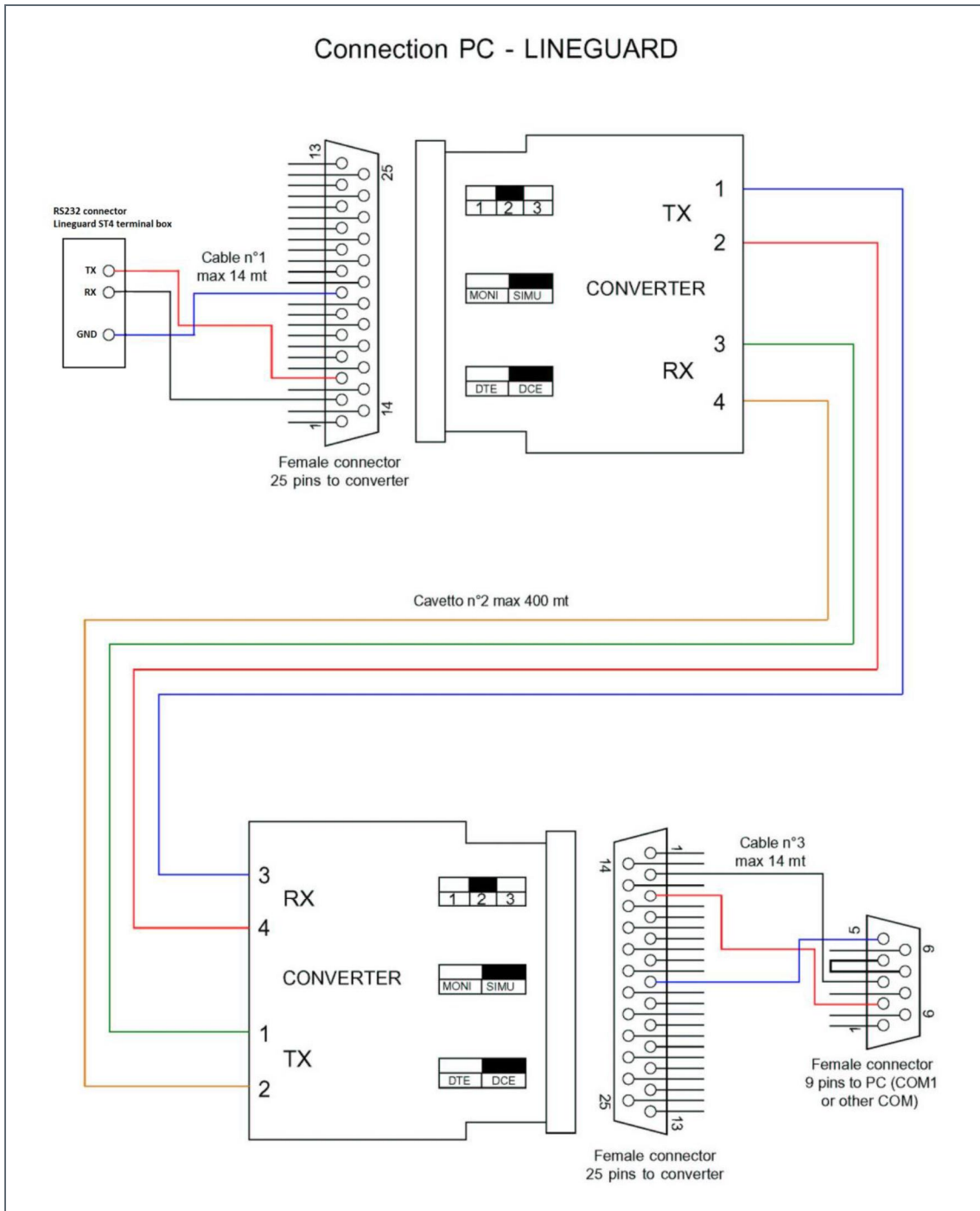
3. Wiring Diagram



Connection Lineguard ST4 + Alarm Box (Example)



Connection Lineguard ST4 Long Distance (Digilog 8.1 connection)



3.1. Cable List

CABLES LEGEND

Multipolar Shielded cables type FR20HH2R 450/750 V (CEI 20-22 II / CEI 20-37 I)

INITIAL	CABLE NUMERATION	SECTION (mm ²)
L1	1-2-PE	3X1,5
L2	15-16-PE	3X1,5
L3	5-6-PE	3X1,5
L8	31-32-PE	3X1,5
L10	35-36	2X1,5
L11	37-38-PE	3X1,5
L12	41-42-PE	3X1,5
L13	45-46-PE	3X1,5
L14	49-50-PE	3X1,5
L15	39-40	2X1,5
L16	43-44	2X1,5
L17	47-48	2X1,5
L18	51-52	2X1,5
L19	17-18	2X1,5
L20	19-20	2X1,5
L21	27-28	2X1,5
L22	29-30	2X1,5
L23	9-10-PE	3X1,5
L24	7-8	2X1,5
L25	53-54	2X1,5

Coaxial Cables RG (Directions MIL C e IBM)

INITIAL	TYPE
L4	Coaxial cable (RG 58 C/U) MIL C 17/E 50 OHM
L5	M17/28 RG 58 (RG 58 C/U) RS 19x0, 18

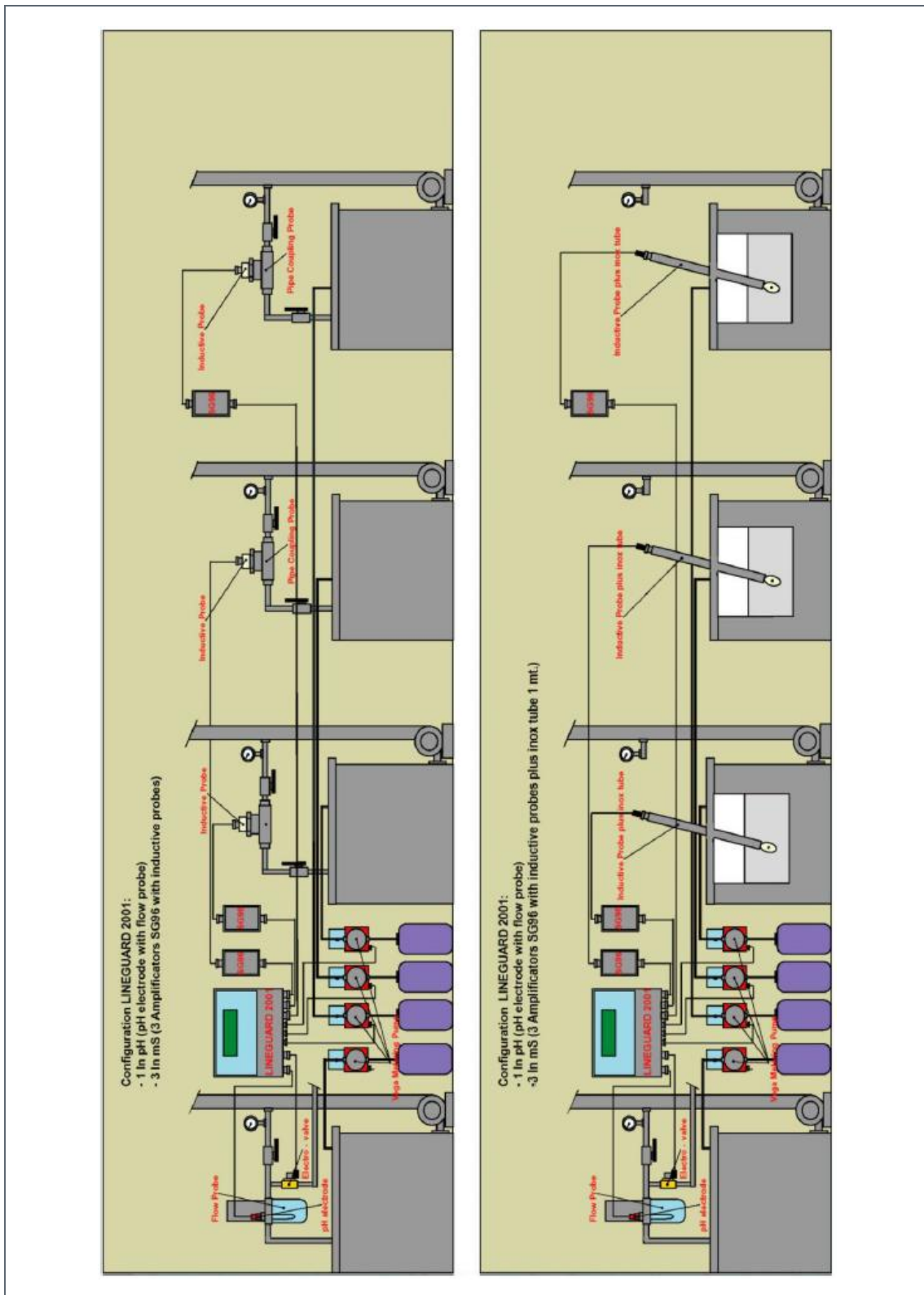
Special Cables Plus Probe

INITIAL	CABLE NUMERATION	SECTION (MM ²)
L6	11-12-13-14-15-16	6X0,5
L7	21-22-23-24-25-26	6X0,5

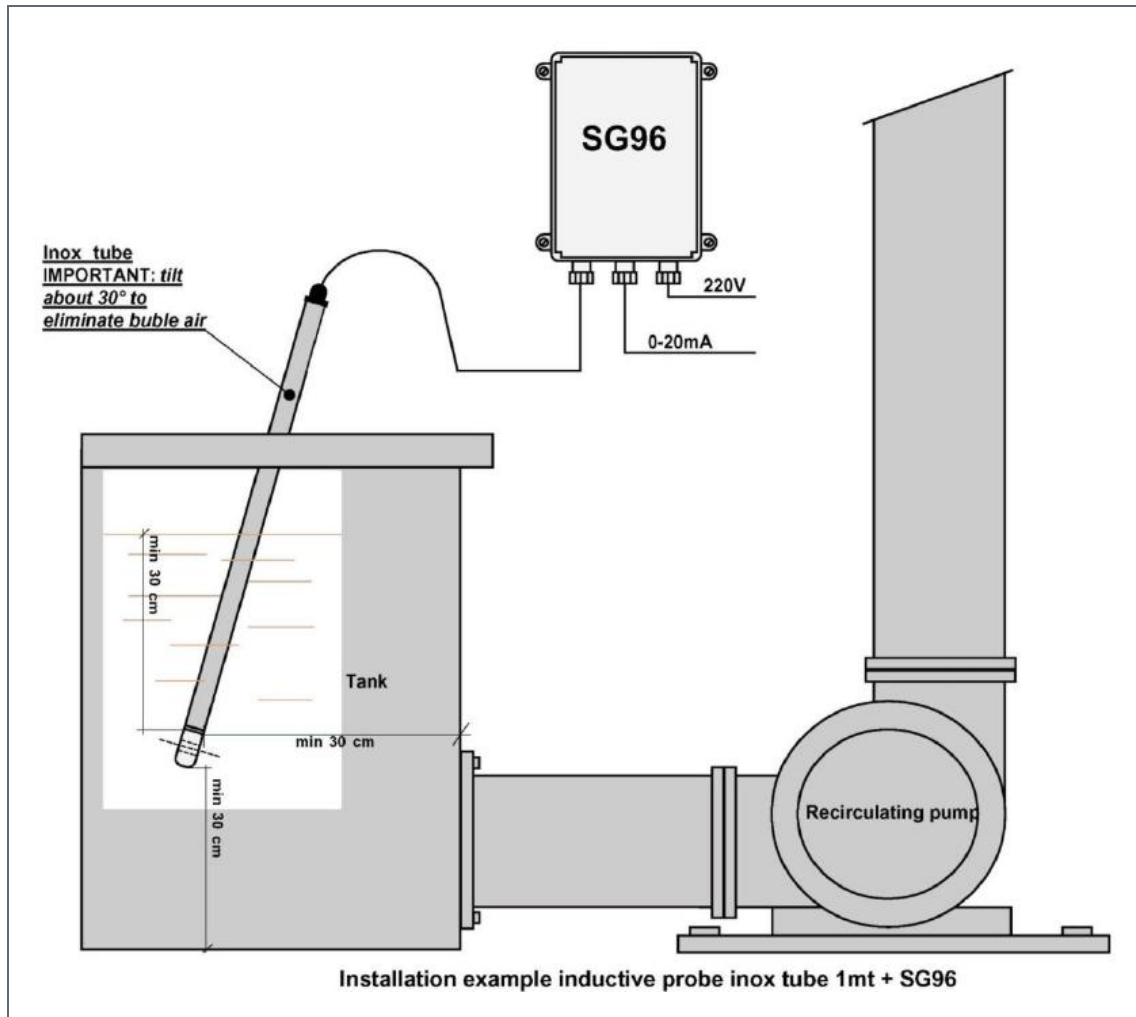
Special Cables Plus Probe

INITIAL	CABLE NUMERATION	SECTION (MM ²)
L9	33-34	2X0,5

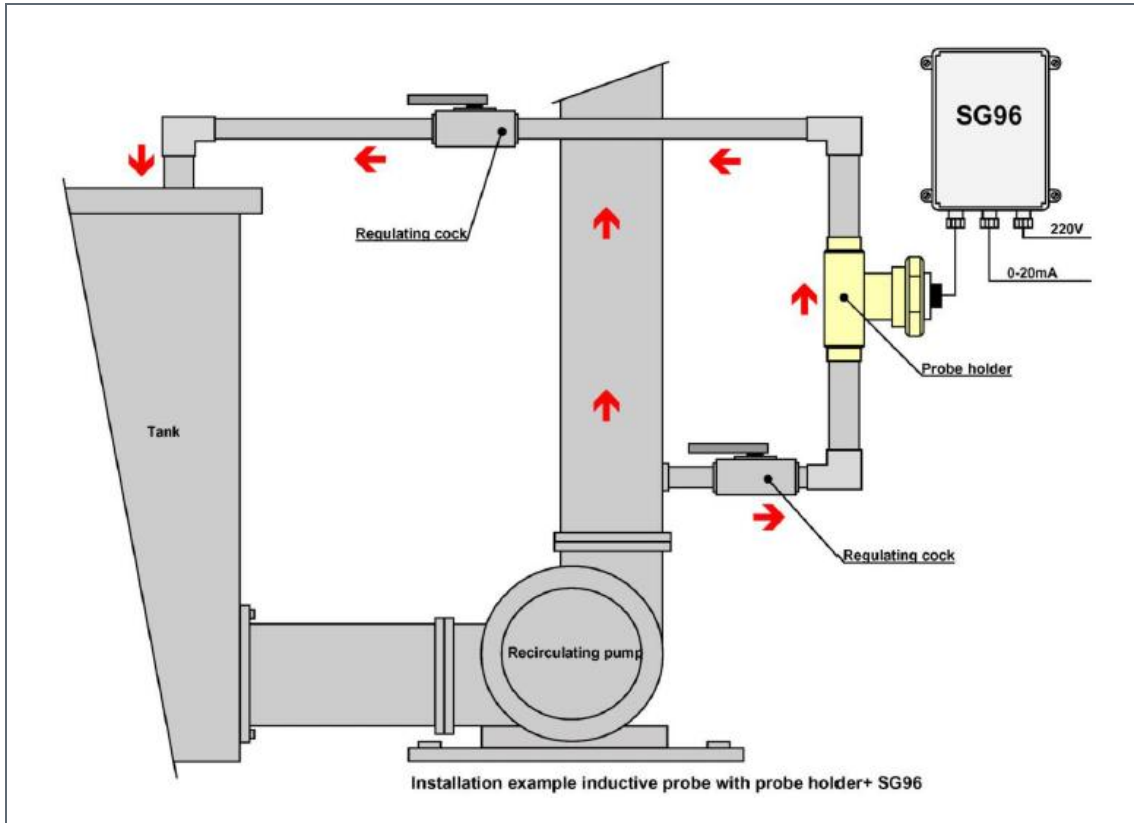
3.2. Hydraulic Connections



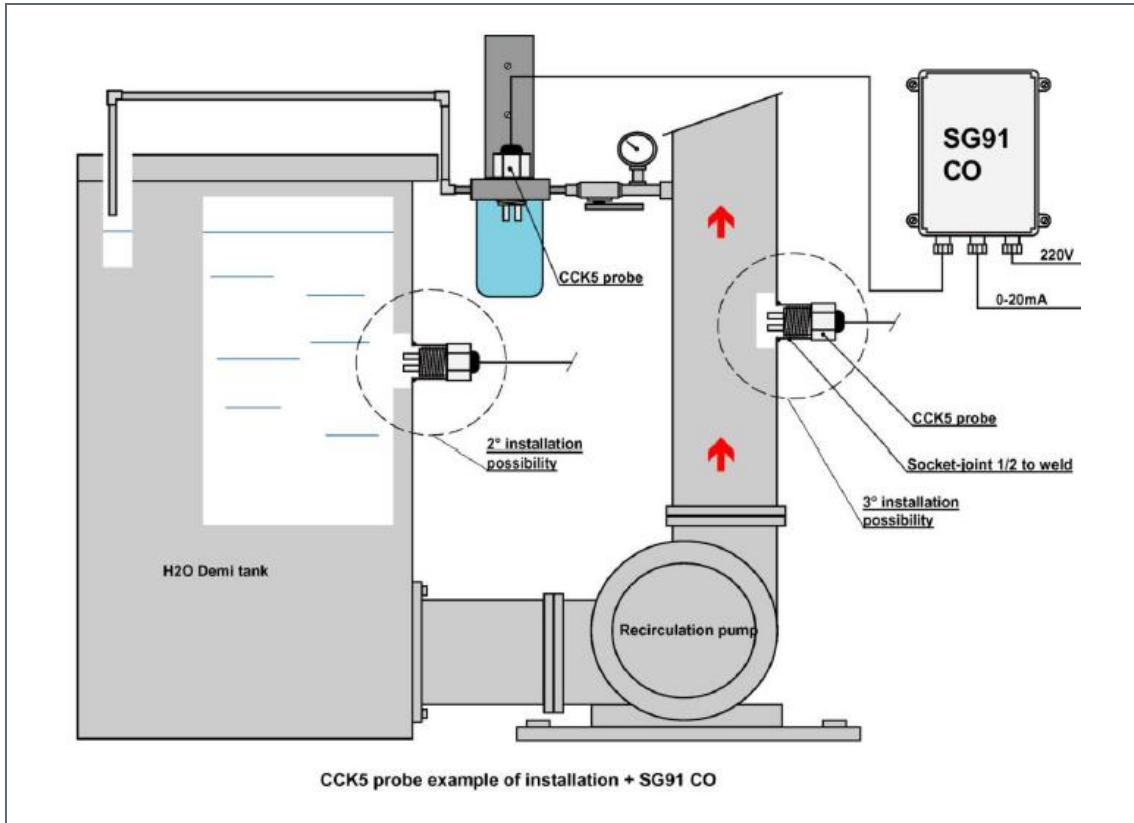
Hydraulic connections (inox tube probe)



Hydraulic connections (inductive probe)



Hydraulic connections (cck5 probe)



Hydraulic connections (washing panel)

